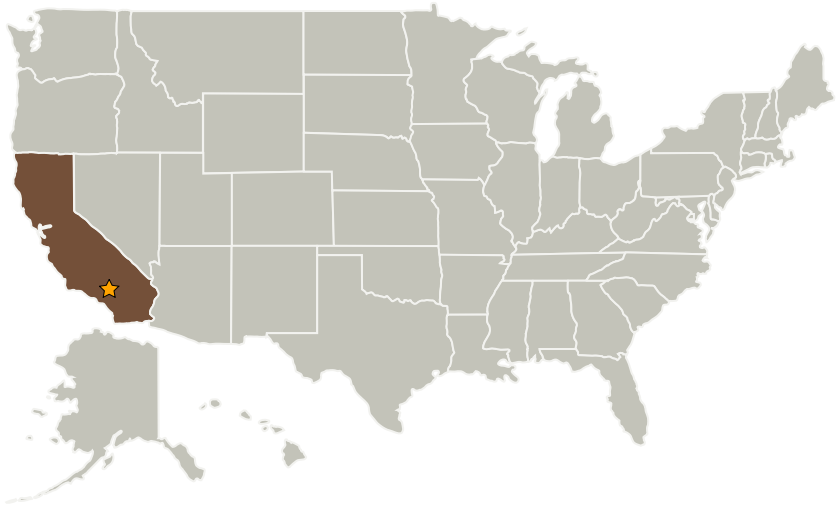
Fused Reality for Enhanced Flight Test Capabilities, Phase I

Completed Technology Project (2009 - 2009)

Project Introduction

While modern ground-based flight simulators continue to improve in fidelity and effectiveness, there remains no substitute for flight test evaluations. In addition to real world cueing (vestibular, visual, aural, environmental, etc.), flight test provides intangibles that can not yet be duplicated in a ground-based simulator. There is, however, a cost to be paid for the benefits of flight in terms of budget, mission complexity, and safety including the need for ground and control room personnel, additional aircraft, etc. New technologies and test techniques are therefore needed to maximize the investments and perhaps even reduce some of the related costs associated with flight test. Systems Technology, Inc. proposes to develop a Fused Reality (FR) system that will allow an animated virtual environment to be integrated with the test aircraft so that tasks such as aerial refueling, formation flying, or air-to-air tracking can be accomplished without additional aircraft resources. Furthermore, for the first time, the dynamic motions of the simulated objects (e.g., refueling drogue or tanker) can be directly correlated with the test aircraft. The FR system will allow real-time observation of and manual interaction with the cockpit environment that serves as a frame for the virtual out-the-window scene.

Primary U.S. Work Locations and Key Partners



Fused Reality for Enhanced Flight Test Capabilities, Phase I

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Armstrong Flight Research Center (AFRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

Fused Reality for Enhanced Flight Test Capabilities, Phase I

Completed Technology Project (2009 - 2009)

Organizations Performing Work	Role	Type	Location
★Armstrong Flight Research Center(AFRC)	Lead Organization	NASA Center	Edwards, California
Systems Technology, Inc	Supporting Organization	Industry	

Primary U.S. Work Locations
California

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
  - TX15.2 Flight Mechanics
    - TX15.2.3 Flight Mechanics Testing and Flight Operations